

Remarks

Reconsideration of the above referenced application in view of the enclosed amendment and remarks is requested. The TITLE is amended at the Examiner's request to make it more descriptive of the claimed invention. The Specification is amended to identify the serial number of the related application. Claims 1, 2, 5, 8, 11, 14, 16, 20, 26, 31 and 35 have been amended. Existing claims 1-37 remain in the application.

ARGUMENT

Claims 1-37 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-28 of USPN 6,990,577 to Autry (hereinafter, "Autry"). This rejection is respectfully traversed based on the following discussion.

Autry describes and claims a system that retrieves a replacement BIOS image from a floppy disk (Col. 2, lines 47-50). The advantages of the invention claimed by Autry enable a portion of the BIOS to be replaced in system so that configuration data in the BIOS need not be reset. In existing systems, a replacement of the BIOS image would have changed all of the configuration information. While this is a valuable invention, it is not related to the invention as claimed by Applicants, nor does it render Applicants' claims obvious.

The Examiner admits that Autry does not mention the use of a baseboard management controller (BMC), but that "the usage of a baseboard management controller is well known in the art." Regardless of whether systems utilize BMCs, the Examiner has not shown that there is any suggestion in Autry or any other prior art that use of a BMC could be combined with Autry to result in Applicants' invention.

Further, Autry discloses and claims a system where the host processor retrieves the replacement BIOS image from a floppy disk. Another embodiment uses a "program" loaded on the hard drive to upgrade the system BIOS. While Autry is silent as to whether the BIOS or operating system (OS) actually performs the upgrade, it is certain that the host processor performs the operation. Further, at no time does Autry describe or suggest negotiating with a donor system based on a received acknowledgement that the donor system has a compatible image, using a predetermined policy to select the donor system from a set of at least one donor

system having a compatible image. It will be apparent to one of skill in the art retrieving a BIOS image by the host processor from a floppy disk does not render it obvious to use a BMC to negotiate with a set of donor systems to find a server that has a compatible image.

In the Detailed Description, at para.[0010], an automatic firmware update proxy is described where

“a Baseboard Management Controller (BMC) act as a proxy agent for updating the Basic Input Output System (BIOS) image. In one embodiment, the BIOS is updated by the BMC while the system is powered on and held in a reset state (i.e., the processor is not executing code). The BIOS image may be obtained by the BMC from a remote management console, a nearby donor system, or a locally stored image. In another embodiment, the BMC proxy may update an operational image for other embedded processors in the system.”

It will be apparent that Autry cannot perform this function, as claimed, because the host processor in Autry retrieves the updated BIOS image from a floppy. Thus, it is impossible for the system of Autry to perform the update while the host processor is held in a reset state. It is not suggested in Autry, or the BMC and IPMI documents to have the BMC request a compatible image from a network server and perform the update while the host processor on the recipient system is not executing (i.e., in a reset state). Thus, the cited references do not render Applicants' claimed invention obvious.

Moreover, Autry describes and claims a system that retrieves a BIOS image from a known location, i.e., a floppy drive. In contrast, Applicants' claimed invention first determines whether the BIOS image needs to be replaced. Then a message is sent over a network to begin negotiating with a donor system to find a compatible image, using a pre-existing policy to select the donor system. Autry neither claims nor describes a system that uses policy to retrieve a BIOS firmware image over a network from one of a plurality of systems. Autry merely load a BIOS image from a floppy. Combining the known features of a BMC and IPMI protocol do not render this feature obvious.

The fact that BMC's exist on servers and use IPMI protocol to communicate with the host processor is not enough to suggest that Applicants' claimed invention would be rendered obvious. The Examiner asserts that “it would be obvious to one of ordinary skill in the art to include the concept of using the controller with the claimed subject matter of the claims of

Autry...” [emphasis added] The Examiner asserts that the motivation is that the usage of the controller supports communicating multiple entries for sending and receiving information among the entities. However, this assertion begs the question. Autry does not disclose that the upgrading of BIOS firmware is to be performed by querying network servers. Autry only teaches updating a portion of a BIOS image for the host processor from a *known*, and local location (floppy). Further, Autry’s claims recite only receiving the BIOS image and explicitly state in claims 5 and 28 that “wherein the receiving comprises: storing the first basic input/output system image in a system memory of a computer system.” Autry discloses in the specification only that the replacement BIOS image is retrieved from a floppy disk. It can be assumed that a user must manually insert a floppy into the system to perform the update. Applicants’ claimed invention is an automatic process using the predetermined policy and BMC network connection. Thus, even a combination of Autry with known features of BMC and IPMI will not make Applicants’ claimed invention obvious.

Claims 1-37 are also provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-25 of co-pending U.S. Pat. Appn. No. 10/820,532, U.S. Pub. No. 2005/0228888, by the same authors (hereinafter, “the ‘532 appl.”). This rejection is respectfully traversed based on the following discussion.

The ‘532 appl. is somewhat related to the present invention in that they both involve updating firmware code, but is believed to be patentably distinct. The present invention is directed toward an automatic firmware update proxy to update the BIOS image of the recipient system by a BMC, or non-host processor, residing on a recipient system. The ‘532 appl. is directed toward updating the firmware operational code for the BMC, or non-host processor on the recipient system, where valid images are retrieved over a network. Thus, in an embodiment, the present invention is directed toward using the BMC to update the BIOS image on the host processor, and the ‘532 appl. is directed toward updating the operational code on the BMC.

The Examiner asserts that the well-known usage of the BIOS and the BIOS related firmware it would be obvious to one of ordinary skill in the art to include the concept of using the BIOS/BIOS firmware with the claimed subject matter of the claims of the copending application. However, the two inventions result in updating of different types of code on

different processors in the system, as well as, potentially effecting the update using different processors, the claimed inventions are patentably distinct. In other words, the server management operational code is not the same thing as a firmware image for a BIOS. Further, known methods of updating a BIOS do not perform the negotiation, by a BMC, with a plurality of donor servers according to a policy to retrieve a compatible BIOS. Thus, the provisional double-patenting rejection should be withdrawn.

The TITLE of the application is amended to be more descriptive, at the Examiner's request.

Claims 1-37 are rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. This rejection is respectfully traversed and Claims 1-37 are believed to be statutory, and allowable, based on the foregoing and following discussion.

The Examiner asserts that Claim 1 and its dependent claims do not produce a concrete and tangible result because the determining step does not produce a concrete and tangible result. Applicant respectfully disagrees. The Examiner asserts that a step of determining that a BIOS firmware image in a recipient system needs to be replaced is not a concrete step until the firmware image is actually replaced. This is faulty reasoning. The step of *determining* is important to the claimed invention because unless an image is determined to require replacement, nothing will be performed. The Examiner is twisting the rule for a claim to produce a "useful, concrete and tangible result." As described in the specification, the BIOS code image will be replaced, when necessary. Thus, it must be determined when it is necessary, and when it is not necessary to replace the image. It will be apparent to one of ordinary skill in the art after reading Applicant's disclosure the determining step is just one feature of the claimed invention.

Moreover, there is no *requirement* that there be a concrete and tangible result at *each and every step or element* of the claimed invention. This requirement doesn't even make sense for non-method claims. The Examiner is confusing the doctrine of showing that the entire claim produces a useful, concrete and tangible result. Applicants' invention does indeed meet this requirement. For instance, Claim 1 recites "*updating the recipient system BIOS firmware with*

the uploaded compatible image from a baseboard management controller (BMC)." Similarly, Claims 8, 14, 16, 20, 26 and 35 all recite either loading the replacement image onto the recipient system, or loading and updating the firmware of the recipient system. Anyone having even minimal skills in the subject art will understand that loading an image onto a system or actually updating the system are useful, concrete and tangible results of the claimed invention. Therefore, Applicants respectfully request that this rejection be withdrawn.

The machine accessible medium claims have been amended to limit the medium to a storage medium. This amendment should make Examiner's objection to carrier waves moot.

Claims 1 and its dependent claims are rejected under 35 U.S.C. § 112, first paragraph as based on a disclosure which is not enabling. This rejection is respectfully traversed and Claims 1-37 are all believed to be enabled by the specification, and have no missing essential elements in the claims.

The Examiner's argument is perplexing in that the Examiner cites description in the specification for elements of the claimed invention and then also says that the elements are not enabling or are not included in the claims. It is not clear from Examiner's argument what is alleged to be missing or non-enabled.

Claim 1 recites:

*"A method for automatic firmware image recovery, comprising:
determining that a firmware image for server basic input output system (BIOS) code in a recipient system needs to be replaced;
sending a message over a network by the recipient system, wherein the message requests a compatible replacement firmware image;
negotiating with a donor system based on a received acknowledgement that the donor system has a compatible image, using a predetermined policy to select the donor system from a set of at least one donor system having a compatible image;
uploading a compatible image sent by the donor system to the recipient system;
and
updating the recipient system BIOS firmware with the uploaded compatible image from a baseboard management controller (BMC)."*

The element of *determining* is described, at least, at [0012] where it is determined that the firmware image for server BIOS, due to a boot failure. It will be apparent to one of skill in

the art that various methods may be used to reveal that the BIOS firmware image is corrupted. Thus, this element is enabled sufficiently to one of skill in the art.

The element of *sending a message over a network* is also described, at least at [0019]. When the system is aware that it needs a replacement or updated image, it sends a message requesting one, to the network. Once the system has requested a new image, it *negotiates with the donor system* in order to receive a compatible image, based on system policies. Para. [0025] to [0026], at least, describes the negotiation, as well as policies that may dictate from which donor system an image should be retrieved.

Once negotiated, a compatible image is sent from the donor system and then the recipient system is updated with the uploaded image. This is described, at least, in para. [0025] to [0026]. The recipient system uses the predetermined policy to select a donor system and accept the image:

"The recipient computer may have a policy to choose which offer to accept, if there is more than one offer. In one embodiment, an offer from a management console will be accepted ahead of all other offers. In another embodiment, an offer of a more recent version is preferred, and multiple donors with the same version may be chosen based on proximity to the recipient system. In yet another embodiment, the BIOS image is retrieved from a predetermined location or donor. It will be apparent to one of ordinary skill in the art that a variety of policies may be implemented on one or both of recipient and donor system.

The recipient determines whether an acknowledgement is received in block 211. The recipient system will also follow policy directives to determine which response to accept and send an acceptance message to the desired donor system in block 212. The policy may be as simple as taking the first proffered image, or may be more complicated as discussed above. The donor system determines whether its offer has been accepted in block 259." [emphasis added]

While it is unclear to what the Examiner is objecting, Applicants believe that the Examiner asserts that the actual "selection" of the donor system is essential to the practice of the invention and neither claimed nor described. This assertion is in error. As discussed above, the recipient system "selects" a donor system by accepting the image offer and sends an acceptance message to the donor system. This is clearly described. Further, one of ordinary skill in the art will understand that accepting an image offer is the same as selecting the donor system.

As described, it is believed that anyone of ordinary skill in the art, after reading the detailed description of the claimed invention, will understand that the system policy dictates the

negotiation and selection of a donor system. As recited in the claims, the negotiation process uses the predetermined policy to select the donor system. This element is clearly recited in the claim as part of the negotiation. Thus, the Examiner's assertion that it is not claimed, is in error. It will be apparent to one of ordinary skill in the art that a variety of policies may be implemented on one or both of recipient and donor system.

Thus, Applicants contend that the selection of the donor system is indeed recited in the claims, as explicitly being part of the negotiation. Applicants also contend that one of ordinary skill in the art would understand how to implement a system policy for donor system selection, based on the description in the application as originally filed. Therefore, this rejection should be withdrawn.

The Examiner asserts that the recitation of a "proxy" is essential to Claims 16, 26 and 35, but not based on an enabling disclosure. It is described in the Specification as originally filed that the BMC acts as a "proxy" for the host processor's BIOS firmware update. (*See at least para. [0010] "A method and apparatus is described for having a Baseboard Management Controller (BMC) act as a proxy agent for updating the Basic Input Output System (BIOS) image."*) As the use of the BMC as a proxy for performing the update – rather than the host processor performing the update itself – is clearly described in the Specification, this rejection should be withdrawn. However, Applicants believe that the use of the term "proxy" is not essential to the claims, as it is clearly recited that the BMC is performing the update rather than the host processor. Thus, Applicants amend Claims 16, 26 and 35 to remove the proxy terminology.

Claim 1 (and similarly, claims 8, 15, 16, 21 and 31) are rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which application regards as the invention. This rejection is respectfully traversed and Claims 1-37 are believed allowable based on the foregoing and following discussion.

The Examiner asserts that negotiating is contrary to an acknowledgement received by the recipient system from the donor system. This assumption is incorrect. As described by Applicants, there may be more than one donor system on the network that has a compatible

image. The recipient system uses a predetermined policy to select the donor system from which the compatible image is to be received. If two or more donor systems acknowledge that they have a compatible image, the recipient system may ignore all but one of the acknowledgements and continue to negotiate with only the one selected donor system, by sending an acceptance message. In an embodiment, the recipient system may actually pro-actively reject an acknowledgement. The “negotiation” continues because, as is known in the art, a transfer protocol used over the network will almost universally require packets of information be sent from the donor system and an acknowledgement that the packets were received intact by the recipient system. Further, it is also described that the recipient system sends the donor system an acceptance. The actual protocol used to transfer the data may vary upon implementation, and is not an essential step of the claimed invention. It will be clearly understood by those of skill in the art, that just because one of the set of donor systems having a compatible image sends an acknowledgement, it is not certain that the desired firmware image will be downloaded from that particular system. The recipient system determines which donor system is to be used, and selects that system using the predetermined policy. Only the selected donor system will continue to be negotiated with. Thus, Applicants believe that the description is accurate and complete and that the recited claims are definite. Therefore, this rejection should be withdrawn.

The Examiner objects to the use of the term “a set of at least one donor system having a compatible image,” and asserts that a “set” is contrary to the term “at least one.” Without insulting the Examiner with a tutorial of set theory, it should be noted that it is widely understood that a “set” may contain zero, one or many items. For evidence of use of this terminology, Applicants performed a search of the terms “empty” and “set” at google.com and the search engine returned 98,000,000 items. A search of the quoted term of “empty set” returned 1,590,000 items. Thus, the term “a set of at least one” is consistent with set theory, and is similar to the term “at least one.” Therefore, this rejection should be withdrawn.

The Examiner further objects to the term “compatible” in Claims 1, 8, 14, 16, 20, 26 and 35 and their dependent claims, as being a relative term. This assertion is ludicrous. It will be apparent to one of ordinary skill in the art, that a finite number of criterion define whether an

image is compatible with a system. Hardware configuration and user/administrator defined parameters, as well as the predetermined policy will dictate whether an image is compatible. Para. [0019] describes an embodiment where the recipient system sends a message requesting a compatible image. It is described that:

“The message typically includes data identifying the requesting server (recipient) which may include the server’s IP address and/or a digital signature, the version of BIOS firmware image requested and server type. In some embodiments, the recipient server may also send other information such as to identify the existing problem, an identifier for a preferred donor, and/or authentication information.”

It should be well understood that a server type and BIOS firmware image version will distinctly identify whether an image on the donor system is compatible with the hardware of the recipient system. However, it will also be understood that other criteria may be used by the recipient system to select a more compatible image based on predetermined policy – for instance, a preference for a specific donor, or identification that a problem exists with the most recent version and that a previous version is requested, etc. The term “compatible” is not indefinite, but may be defined more particularly, based on the system policy, as described in the specification. Thus, this rejection should be withdrawn.

Applicant thanks the Examiner for pointing out the duplication of the element of uploading in Claim 2. The uploading of Claim 2 is the same uploading of Claim 1. It was meant to show that the uploading was performed after the receiving and determining, etc. Claim 2 has been amended to indicate the temporal performance of the claimed elements.

Claim 26 has been amended to make it more clear to the Examiner that the firmware image for server BIOS is the same as the BIOS firmware image for a recipient system. Applicants believe that the amendments do not change the scope or meaning of the claim, but merely make it easier to parse.

Applicants amend the recitation of “on the network” to “in the network” at the Examiner’s request. However, this amendment does not change the scope of the claimed invention as it is understood that those terms are interchangeable in the current vernacular.

Applicants amend the claims to recite “when the donor system” instead of “if the donor system,” in response to the Examiner’s objection to this terminology.

Applicants object to the Examiner’s broad refusal to consider “wherein” clauses to further limit the elements of the claims. Applicants contend that the use of the “wherein” in the recitation of the claims limits the structure, functionality or other key feature of an element. Applicants do not believe that any recited elements are “optional,” and respectfully request the Examiner to particularly point out any specific incidence of a *wherein* clause that is being ignored in the interpretation of the claim.

The Examiner has failed to provide *prima facie* evidence of obviousness or unpatentability. Applicants believe that all § 101 and § 112 rejections have been overcome by amendment or discussion. Therefore, Claims 1-37 are in condition for allowance and should be permitted to issue at the earliest time. Applicants also contend that any amendments made are merely for clarity, and do not change the scope or meaning of the claims, or require a further search. Therefore, if the Examiner should see fit to cite any other prior art in a new rejection, Applicants respectfully request a new *non-final* office action.

CONCLUSION

In view of the foregoing, Claims 1-37 are all in condition for allowance. If the Examiner has any questions, the Examiner is invited to contact the undersigned at (703) 633-6845. Early issuance of Notice of Allowance is respectfully requested. Please charge any shortage of fees in connection with the filing of this paper, including extension of time fees, to Deposit Account 50-0221 and please credit any excess fees to such account.

Respectfully submitted,

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/Joni D. Stutman-Horn /
Joni D. Stutman-Horn, Reg. No. 42,173
Patent Attorney
Intel Corporation
(703) 633-6845

Intel Corporation
c/o Intellevate, LLC
P.O. Box 52050
Minneapolis, MN 55402